[0098] If "power-transmission enabled/disabled" of the apparatus status information indicates "enabled" as in the apparatus status information example illustrated in FIG. **6**A (YES in step S**560**), the RX-CPU **202** determines that the power transmission apparatus **100** is in the power-transmission enabled state. In this case, the operation returns to step S**554** and the RX-CPU **202** exchanges the apparatus status information with the power transmission apparatus **100**.

[0099] On the other hand, when "power-reception enabled/disabled" indicates "disabled" (NO in step S**560**), the RX-CPU **202** determines that the power transmission apparatus **100** is in the power-transmission disabled state, and the operation proceeds to step S**561**. In step S**561**, the RX-CPU **202** displays a warning as illustrated in FIG. **9**B to notify the user of the stoppage of the wireless power transmission, in the RX display unit **242**, and then the operation returns to step S**551**.

[0100] According to the first exemplary embodiment, the RF detection unit **132** of the power transmission apparatus **100** detects the amount of the generated harmonic (13.56 MHz), which influences the contactless IC card **400**, of the electric power wave emitted from the power transmission apparatus **100**. The RF detection unit **132** dynamically controls the amount of electric power for power transmission, according to the result of this detection. Such processing can reduce influence such as heat on a contactless IC card equipped with an antenna having resonance frequency of about 13.56 MHz.

[0101] A second exemplary embodiment will be described. According to the second exemplary embodiment, a band pass filter (BPF) circuit is used for extraction of a frequency component that adversely influences a contactless IC card. FIG. **10** illustrates a schematic configuration block diagram of a power transmission apparatus **100**A according to the second exemplary embodiment. In the power transmission apparatus **100**A illustrated in FIG. **10**, the same components as the components of the power transmission apparatus **100** are provided with the same reference characters as the power transmission apparatus **100**. A power receiving apparatus has a configuration similar to the configuration of the power receiving apparatus **200**, and thus will not be described.

[0102] The power transmission apparatus **100**A illustrated in FIG. **10** includes, in place of the RF detection unit **132**, an RF detection unit **132**A, which has a configuration different from the configuration of the RF detection unit **132**. FIG. **11** illustrates a schematic configuration block diagram of the RF detection unit **132**A. As illustrated in FIG. **11**, the RF detection unit **132**A is configured such that a BPF circuit **310** is inserted between the RF matching circuit **304** and the RF rectification smoothing circuit **306** of the RF detection unit **132**. In FIG. **11**, the same components as the components illustrated in FIG. **3** are provided with the same reference characters as FIG. **3**.

[0103] The BPF circuit **310** has a bandwidth in a range of frequencies near 13.56 MHz. For example, it allows, from the output of the RF matching circuit **304***a*, a wave of frequencies of ±2 MHz centering on 13.56 MHz, to selectively pass. The REF circuit **310** may be configured as a passive filter circuit including only a passive device, or may be configured as an active filter circuit by using an active device. Further, the BPF circuit **310** may be a circuit having a Fourier transform function, e.g., circuit that can perform fast Fourier transform (FFT). Furthermore, the BPF circuit **310** may have a circuit structure in which a passing frequency and a bandwidth thereof can be adjusted by the control of the TX-CPU **102**.

[0104] A procedure of wireless power transmission. to be performed between the power transmission apparatus **100**A and the power receiving apparatus **200** is similar to procedure according to the first exemplary embodiment. However, in the determination in each of step S**502** and step S**511**, a detection output of the RF detection unit **132**A is used in place of the detection output of the RF detection unit **132**.

[0105] According to the present exemplary embodiment, since the BPF circuit **310** is inserted into the RF detection unit **132**A, it is possible to detect more reliably the intensity of the frequency component, which greatly influences a contactless IC card, from the electric power wave in the wireless power transmission. Therefore, the influence on the contactless IC card can be reduced since the intensity of the electric power wave to be output from the power transmission apparatus **100**A is more reliably controlled.

[0106] A third exemplary embodiment will be described below. Specifically, a power transmission apparatus configured to detect RF component intensity at a plurality of different points will be described. FIG. **12** illustrates schematic configuration block diagram of a power transmission apparatus **100**B thus modified. The power transmission apparatus **100**B illustrated in FIG. **12** includes RF detection units **132**B and **132**C, in addition to the RF detection unit **132**. The RF detection units **132**, **132**B, and **132**C have the similar configurations. The same components as the components illustrated in FIG. **1** are provided with the same reference characters as FIG. **1**, and will not be described in detail. However, a function of a TX-CPU **102**B or a function implemented by a program running on the TX-CPU **102**B is the function of the TX-CPU **102** modified to enable evaluation of a detection result of the RF detection units **132**, **132**B, and **132**C.

[0107] A power receiving apparatus for the power transmission apparatus **100**B has the same configuration as the configuration of the power receiving apparatus **200**. A sequence of wireless power transmission between the power transmission apparatus **100**B and the power receiving apparatus **200** is similar to the sequence described with reference to FIGS. **5**A and **5**B. However, in the RF detect determination process in each of step S**502** and step S**511**, "RF detection voltage <determination threshold" holds if the detection result of any of the RF detection units **132**, **132**B, and **132**C is less than the determination threshold.

[0108] FIGS. **13**A, **13**B, and **13**B illustrate a layout example of the power transmission apparatus **1008** (its power transmission antenna **114**, and the RF detection units **132**, **132**B, and **132**C), the power receiving apparatus **200** (the power receiving antenna **204**), and the contactless IC card **400**. The RF detection unit **132** detects the RF intensity near the power transmission antenna **114**, and the RF detection units **132**B and **132**C detect the RF intensity at a position laterally separated from the power transmission antenna **114**, as illustrated in FIGS. **13**A, **138**, **13**C. The RF detection unit **132** disposed near the power transmission antenna **114** can effectively detect influence of a harmonic exerted by the power receiving apparatus **200**.

[0109] FIG. **13**A illustrates the layout example in which the power receiving antenna **204** is located in front of the power transmission antenna **114**, while the contactless IC